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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/563,126

01/03/2006

Yasufumi Takahashi

MAM-070

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EXAMINER

HODGE, ROBERT W

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

09/18/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/563,126	Applicant(s) TAKAHASHI ET AL.	
	Examiner ROBERT HODGE	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 August 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) 8 and 9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>See Continuation Sheet</u> . | 6) <input type="checkbox"/> Other: _____ |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :1/3/06, 10/17/08, 12/2/08 & 4/29/09.

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of group I, claims 1-7 and 10 in the reply filed on 8/31/09 is acknowledged.

Claims 8 and 9 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 8/31/09.

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

The information disclosure statements (IDS) submitted on 1/3/06, 10/17/08, 12/2/08 and 4/29/09 have been considered by the examiner.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4 & 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear how “a ratio in charge capacity” at an “end-of-charge voltage of the battery is prescribed at 4.4 V” further limits the structure of the product of the parent claims. Therefore as long as the chemistry of the battery is found in the parent claims it will read on the above listed claims as recited. Said recitations also appear to be reciting only the intended use of the battery.

Claims 4 & 10 provides for the use of a battery, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 4 & 10 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-7 and 10 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by JP 2002-358963 hereinafter Yonekawa.

Yonekawa teaches a nonaqueous electrolyte secondary battery which has a positive electrode containing lithium cobalt oxide as a positive active material, a negative electrode containing a graphite material and a nonaqueous electrolyte solution containing 10-20% by volume of ethylene carbonate as a solvent and which is charged with an end-of-charge voltage of at least 4.3 V, said battery being characterized in that said positive active material is a product obtained by firing a mixture of a lithium salt, tricobalt tetraoxide (Co_3O_4) and a zirconium compound at a temperature of below 900 °C. but not below 700 °C, such that the zirconium compound is in an amount of less than 1 mole % but not less than 0.1 mole %, based on the total mole of cobalt and zirconium that has a particle diameter from 100 nm to 3 μm , and the zirconium compound adheres onto particle surfaces of said lithium cobalt oxide (paragraphs [0012]-[0014], [0019], [0022], [0024], [0031], [0038], [0042], [0044] and [0052]-[0055]).

Claim 1 is rejected under 35 U.S.C. 102(a) as being clearly anticipated by CN 149527 hereinafter Li.

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Li teaches a nonaqueous electrolyte secondary battery which has a positive electrode containing lithium cobalt oxide as a positive active material, a negative electrode containing a graphite material and a nonaqueous electrolyte solution containing ethylene carbonate as a solvent and which is charged with an end-of-charge voltage of at least 4.3 V, said battery being characterized in that a zirconium-containing compound adheres onto particle surfaces of said lithium cobalt oxide (whole document)

Claim 1 is rejected under 35 U.S.C. 102(a/e) as being clearly anticipated by U.S. Pre-Grant Publication No. 2004/0121234 hereinafter Le.

Le teaches a nonaqueous electrolyte secondary battery which has a positive electrode containing lithium cobalt oxide as a positive active material, a negative electrode containing a graphite material and a nonaqueous electrolyte solution containing ethylene carbonate as a solvent and which is charged with an end-of-charge voltage of at least 4.3 V, said battery being characterized in that a zirconium-containing compound adheres onto particle surfaces of said lithium cobalt oxide (abstract and paragraphs [0008]-[0009] and [0026]-[0047]).

Claim Rejections - 35 USC §102/ 103

Claims 2-4, 6 and 10 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Li.

Li as discussed above is incorporated herein.

Li further teaches that the zirconium compound is in an amount of less than 1 mole % but not less than 0.1 mole %, based on the total mole of cobalt and zirconium (whole document).

The examiner notes that claims 2-4, 6 and 10 are product-by-process claims. "Product-by-process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps". See MPEP § 2113. Therefore because all of the structure recited in claims 2-4 is present in the Li reference, claims 2-4 are included in the above 102(a)/103(a) rejection.

Claims 2-4, 6, 7 and 10 rejected under 35 U.S.C. 102(a/e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Le.

Le as discussed above is incorporated herein.

Le further teaches that the zirconium compound is in an amount of less than 1 mole % but not less than 0.1 mole %, based on the total mole of cobalt and zirconium that has a particle diameter from 100 nm to 3 μ m (see citations above).

The examiner notes that claims 2-4, 6, 7 and 10 are product-by-process claims. "Product-by-process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps". See MPEP § 2113. Therefore because all of the structure recited in claims 2-4, 6, 7 and 10 is present in the Le reference, claims 2-4, 6, 7 and 10 are included in the above 102(a/e)/103(a) rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Le as applied to claim 2 above, and further in view of U.S. Patent No. 5,030,528 hereinafter Shen.

Le does not teach the amount of ethylene carbonate present in the electrolyte solution.

Shen teaches a lithium secondary battery wherein the nonaqueous solvent mixture comprises 10-20% by volume of ethylene carbonate (abstract and column 2, line 62 - column 3, line 4).

At the time of the invention it would have been obvious to one having ordinary skill in the art to regulate the amount of ethylene carbonate present in the electrolyte solution such that it is between 10-20% by volume in Le as taught by Shen in order to

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provide a lithium secondary battery having an improved electrolyte that will have lower internal impedance, longer cycle life, higher energy density, low self-discharge and a longer shelf life (abstract of Shen). If a technique has been used to improve one device (regulating the amount of ethylene carbonate present in the electrolyte solution such that it is between 10-20% by volume), and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way (providing a lithium secondary battery having an improved electrolyte that will have lower internal impedance, longer cycle life, higher energy density, low self-discharge and a longer shelf life (abstract of Shen)), using the technique is obvious unless its actual application is beyond his or her skill. See MPEP 2141 (III) Rationale C, KSR v. Teleflex (Supreme Court 2007).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT HODGE whose telephone number is (571)272-2097. The examiner can normally be reached on 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Robert Hodge/
Examiner, Art Unit 1795